

The following Benthic and Water Monitoring sites will be established and sampled to evaluate the effectiveness of the activities proposed in the Remediation Plan:

**BASDLHC-** Existing benthic assessment site situated on Little Hackers Creek, approximately 420 feet downstream of proposed outlet 019 which replaces existing outlet 001.

**BASUHC-10-** Proposed benthic assessment site situated on Hackers Creek, approximately 500 feet upstream of confluence with Little Hackers Creek.

**BASDHC-4-** Existing In-stream monitoring site to be converted to a benthic assessment site situated on Hackers Creek, approximately 500 feet downstream of confluence with Little Hackers Creek.

**BASDHC-4A-** Existing In-stream monitoring site to be converted to a benthic assessment site situated on Hackers Creek, approximately 500 feet downstream of confluence with Little Foxgrape Run.

**BASDFGR-58-** Existing In-stream monitoring site to be converted to a benthic assessment site situated on Foxgrape Run downstream of the permitted facility.

**BASUTFGR-** Existing In-stream monitoring site to be converted to a benthic assessment site situated on Foxgrape Run upstream of the permitted facility.

The initial benthic sampling will occur in calendar year 2019 in order to establish benchmark/baseline conditions. The Benthic survey must be conducted between April 15 & October 15 of each year. The annual survey is to be conducted as close to baseline survey date as possible, no more than 15 days on either side of baseline anniversary date. Circumstances that may preclude adherence to the 30-day anniversary sampling window are, high water events, periods of drought or very low flows or areas that were recently dry, very high flows, very low flows, or turbid conditions.

The benthic survey is to be conducted in accordance with the provisions in WVDEP's Watershed Assessment Branch's 2018 Field Sampling Standard Operating Procedures (Rev. 8/22/18) for calculating West Virginia Stream Condition Index "WVSCI" scores (2018 Procedures, pp 5-42 to 5-45, recognizing, however, that the habitat in Little Hackers Creek itself may not have sufficient riffle- pool habitat to compute WVSCI-comparable scores.

At least 30 days in advance of planned benthic sampling, Wolf Run shall advise the DEP Mining Biologist or its designee of a scheduled benthic sampling event by email at [kevin.d.seagle@wv.gov](mailto:kevin.d.seagle@wv.gov). If DEP elects to or cannot attend on the scheduled date, Wolf Run will proceed with sampling and monitoring as per the procedure above. Completed benthic monitoring reports shall be submitted within 30 days of receipt of those reports by Wolf Run to the DEP at [kevin.d.seagle@wv.gov](mailto:kevin.d.seagle@wv.gov).

Water chemistry will be monitored at the following locations semi-monthly, unless otherwise specified:

**BASDLHC**  
**BASUHC-10-**  
**BASDHC-4-**  
**BASDHC-4A-**  
**BASDFGR-58-**  
**BASUTFGR-**  
**Outfall 005-** Plant Makeup water pond  
**Outlet 001-** Refuse area toe pond until replaced by  
**Outlet 019.**

The samples will be tested and analyzed for Total Iron, Total Aluminum, Dissolved Aluminum, Specific Conductance, Total Dissolved Solids, Total Suspended Solids, Total Settable Solids, pH, Sulfates as SO<sub>4</sub>, Total Alkalinity, Total Acidity, Calcium, Magnesium, Sodium, Carbonates, Potassium, Dissolved Oxygen and Flow.

Water monitoring and sampling will start in the 2019 concurrent with the initial benthic baseline survey and will continue throughout the term of the consent decree; however, upon completion of construction activities and a demonstration that the water quality in the receiving streams has normalized, Wolf Run may request for DEP approval a reduction in certain parameters or frequency of sampling.

During the term of the consent decree, if there is a precipitation event of 1.0 inch or more in a 24-hour period, then within 48 hours of completion of the event, the listed sites will be sampled for the same parameters. The rainfall sampling event can be substituted for a regularly scheduled event if two samples have not been previously collected in any given month.

Results of the water sampling will be submitted to the DEP within 25 days of the end of each calendar quarter to: [kevin.d.seagle@wv.gov](mailto:kevin.d.seagle@wv.gov).

Wolf Run will compile all of the water chemistry data into an annual summary report evaluating trends in the data. This report will look at the data for the current period compared to the previous annual period. The initial report will be due on February 25, 2020 and on the same date each year thereafter. The report will be submitted to the DEP, attention the listed individuals below:

[harold.d.ward@wv.gov](mailto:harold.d.ward@wv.gov)

[john.t.vemon@wv.gov](mailto:john.t.vemon@wv.gov)

[kevin.d.seagle@wv.gov](mailto:kevin.d.seagle@wv.gov)